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ABSTRACT

The strengths and limitations of a developmental approach to the study of teacher change are described. The developmental approach is characterized by: (1) a focus on an end state (maturity); (2) the assumption that all individuals go through the same sequence of changes leading to that end state; and (3) the assumption that these changes are self-directed. This approach is clarified by using examples, and by contrasting it with a biological model of development and a socialization approach to the study of teacher change. A developmental theory of teacher change cannot provide a justification for particular educational goals; justification for adoption of a developmental stage as a goal must come from outside the theory. Developmental theories might help teacher educators understand the mechanisms by which teachers change, but existing theories of teacher development are weak at this point. A description of the stages of teacher change may help teacher educators sequence their instruction. Seeing early stages from the perspective of the end state may also help teacher educators to appreciate teachers at early stages. The paper concludes with suggestions for those who would attempt a developmental approach to the construction of a theory of teacher change. (Authors)

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A DEVELOPMENTAL APPROACH TO THE STUDY OF TEACHER CHANGE: WHAT'S TO BE GAINED?

Robert E. Floden and Sharon Feiman

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Abstract

This paper describes the strengths and limitations of a developmental approach to the study of teacher change. The approach is characterized by: (1) a focus on an end state, (2) the assumption that all individuals go through the same sequence of changes leading to that end state, and (3) the assumption that these changes are self-directed. The approach is clarified by using examples, and by contrasting it with a biological model of development and a socialization approach to the study of teacher change. The authors show that a developmental theory of teacher change cannot provide a justification for particular educational goals; justification for adoption of a developmental stage as a goal must come from outside the theory. Developmental theories might help teacher educators understand the mechanisms by which teachers change, but existing theories of teacher development are weak at just this point. A description of the stages of teacher change may help teacher educators sequence their instruction. By seeing early stages from the perspective of the end state, it may also help them appreciate teachers at early stages. The paper concludes with suggestions for those who would attempt a development approach to the construction of a theory of teacher change.

A DEVELOPMENTAL APPROACH TO THE STUDY OF TEACHER CHANGE: WHAT'S TO BE GAINED?[1]

Robert E. Floden and Sharon Feiman[2]

Teacher educators and educational researchers share a desire to improve elementary and secondary school education. Since teachers make a difference in education, one promising way to improve education is through changes in teachers. The ways in which changes can be effected, however, are poorly understood. Many educators and researchers believe that a better understanding of patterns of teacher change would suggest means for producing or fostering desired changes.

That teachers do change, particularly in the early years of their career, is well documented. How those changes should be described and why they occur remain topics for research and discussion. Current studies of teacher development and teacher socialization reflect an interest in teacher change, and exemplify differences in approaches to the study of change.

Any manageable study of change must separate those changes to be studied from those which, while acknowledged, are not primary foci. The adoption of a developmental approach entails a particular strategy for selecting and describing focal changes. Thus it provides a way of isolating a few of the myriad changes that occur, presenting an

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incomplete picture of change that makes the isolated changes more comprehensible.

In this paper, we examine the strengths and limitations of a developmental approach to the study of teacher change. We describe the chief characteristics of the approach, consider what can and cannot be gained from it in general, and finally consider its application to studying changes in teachers.

We speak as though "development" had a clear and acknowledged interpretation, but this pretension of clarity is a rhetorical device. While various papers (Hamburger, 1957; Hamlyn, 1975, 1978; Kohlberg, 1969; Nagel, 1957; Olson, 1957; Peters, 1974; Spiker, 1966; Toulmin, 1971; Werner, 1957) have been written to explicate *the* meaning of "development," the conclusions generally conflict, at least in part. The meanings educators intend to give to the term may vary even more widely than the meanings described in the philosophical analyses.

We have tried to make the best possible case for a developmental approach by describing a promising developmental way to study teacher change. In selecting and describing this approach, we have attempted to isolate from various descriptions of development those aspects with the most potential for arriving at a useful theory of teacher change. We hope that discrepancies between our characterization and the conceptions of development held by others will not lead to unfair criticism of other developmental approaches. From the examples discussed throughout the paper, it should be clear that the most prominent developmental theories fit within our framework. We suspect, however, that our characterization bears little resemblance to the popular use of the expression "staff development" to refer to any and all kinds of inservice teacher education and the resulting changes in teacher performance.

To illustrate the features of the developmental approach, we will use Kohlberg's (1969) theory of moral development. Kohlberg's approach fits within our framework, although Kohlberg himself proposes a much more restrictive definition of development than ours. We chose Kohlberg's theory as an example for several reasons. First, the theory is an extension of the work of Piaget, and hence incorporates many of the features that proved powerful in biological theories by which Piaget was inspired. Second, Kohlberg, unlike Piaget, proposes a theory that encompasses *adult* cognitive development, an area closer to the context of teacher change. Third, Kohlberg's theory has recently been proposed as the basis for a theory of teacher development. Fourth, the theory is one that will be familiar to many readers. Finally, it is a theory that has received considerable scrutiny, and hence its strengths and weaknesses are relatively well understood.

Kohlberg has attempted to describe the changes in patterns of moral reasoning. Through research on both children and adults, Kohlberg has arrived at a progression of six stages; each stage represents the way in which an individual reasons about moral problems. Each individual is said to go through the stages in the same order, though not every individual will go through all six stages. The stages run from avoidance of punishment through (among other stages) conformity to stereotypical images of the beliefs of the majority, to the final stage of principled autonomy. These stages are described in greater detail in Table 1. The final stage deserves further elaboration since Kohlberg sees all the other stages as leading up to this end. Every stage is defined in terms of the way in which an individual would reason about a moral dilemma, rather than the resolution of the dilemma reached. Following Piaget, Kohlberg refers to the way of reasoning as indicating a particular cognitive structure, rather than

Table 1

Classification of Moral Judgment into Levels and Stages of Development*

Levels	Basis of Moral Judgment	Stages of Development
I.	Moral value resides in external, quasi-physical happenings, in bad acts, or in quasi-physical needs rather than in persons and standards.	Stage 1. Obedience and punishment orientation. Egocentric deference to superior power or prestige, or a trouble-avoiding set. Objective responsibility.
		Stage 2. Naively egoistic orientation. Right action is that instrumentally satisfying the self's needs and occasionally others. Awareness of relativism of value to each actor's needs and perspective. Naive egalitarianism and orientation to exchange and reciprocity.
II.	Moral value resides in performing good or right roles, in maintaining the conventional order and the expectancies of others.	Stage 3. Good-boy orientation. Orientation to approval and to pleasing and helping others. Conformity to stereo-typical images of majority or natural role behavior, and judgment by intentions.
		Stage 4. Authority and social-order maintaining orientation. Orientation to "doing duty" and to showing respect for authority and maintaining the given social order for its own sake. Regard for earned expectations of others.
III.	Moral value resides in conformity by the self to shared or shareable standards, rights, or duties.	Stage 5. Contractual legalistic orientation. Recognition of an arbitrary element or starting point in rules or expectations for the sake of agreement. Duty defined in terms of contract, general avoidance of violation of the will or rights of others, and majority will and welfare.
		Stage 6. Conscience or principle orientation. Orientation not only to actually ordained social rules but to principles of choice involving appeal to logical universality and consistency. Orientation to conscience as a directing agent and to mutual respect and trust.

*From Kohlberg (1977, p. 37).

particular cognitive content. The individual at the final stage--the mature individual--would reach a decision by considering the dilemma in terms of certain general moral principles. The principles would be chosen for their universal applicability and consistency, and not because of their acceptance by other individuals. Kohlberg likens the reasoning of the mature individual to the approaches described in works of moral philosophers such as Kant and Rawls (Kohlberg, 1973). This formulation of the end state places attention on moral reasoning rather than action, and on the mode of reasoning rather than the outcome of that reasoning.

Kohlberg describes the mechanism through which change occurs, again following Piaget, in terms of accommodation, assimilation, and equilibration. In each of these processes, the change results from an interaction between the individual and the environment. The individual is an active agent in both the motivation and direction of change, and the environment provides situations that support some changes and inhibit others.

In the next section we describe the characteristics of a developmental theory, and of the approach or perspective an investigator takes in trying to arrive at such a theory. We then turn to a general discussion of limitations of developmental theory as a guide to selecting educational goals. Next, we narrow our focus to the context of teacher change and discuss the possible uses of developmental theory. We end by suggesting initial steps for those who would attempt a developmental approach to the construction of a theory of teacher change.

A Developmental Approach

The sought-after result of a developmental approach is a two-part theory of change. The first part is a description of the sequence of changes, leading up to the end state. This description often takes the form of a description of stages, culminating in the mature stage. The description of each stage includes all and only those aspects of the individual that are seen as leading to the characteristics that mark the mature state. Kohlberg, for example, has six stages, in which each stage description characterizes the individual's moral reasoning.

The second part of the developmental theory is a description of the process or mechanism by which change is brought about. This description explains how the individual moves from one stage to the next, or how that individual progresses through the sequence of changes. This part of the formulation is generally more difficult to provide. One need only observe the individuals over time to see what changes are occurring, but the reasons for the changes are not likely to be immediately apparent. Hence, it is not surprising that many developmentalists either stop short of describing the change mechanism, or provide a description of that mechanism that is vague and abstract.

What characterizes a developmental approach? How would such an approach differ from some other way of thinking about changes in teachers? Three characteristics make an approach developmental: (1) a focus on an end state, (2) the assumption that all individuals go through the same sequence of changes leading to that end state, and (3) the assumption that these changes are self-directed. Of these, the end state will be seen as primary. Each of the characteristics is illustrated with an example from Kohlberg's theory of moral development.

End State

A developmental approach begins with a description of an end state. Changes are considered as they relate to this state. Changes in the individual after the end state is reached are outside the scope of the developmental investigation.

The characterization of the end state--the description of the mature individual--is not simply a matter for empirical investigation. Individuals change in many ways over the course of their lives; in fact, they are probably changing in some way at all times. The investigator taking a developmental approach, however, will not consider all changes. A characterization of the individual that specifies some characteristics is taken as describing the completion of developmental change. This final state is often labeled maturity. Changes after maturity are not part of development, though an investigator may well consider them worth studying.

The investigator decides how the end state is to be described, and, in the process, chooses to exclude many characteristics of the individual, even of the mature individual. That is, some characteristics are taken as defining characteristics of maturity, while other characteristics, even those shared by all or most mature individuals, are taken as incidental. As a specific example of incidental characteristics, changes after a certain point in the individual's life (after maturity is reached) are outside the range of investigative interest; changes occurring after maturity are not developmental changes. When biologists study insect development, they use the ability to reproduce sexually as the primary defining characteristic of the end state. Insects may later lose this ability. While no

biologist would deny this change, the change would not be characterized as a developmental change, and hence would not be considered in a study of insect development.

In adopting his formulation for the end state, Kohlberg had decided to ignore, for example, changes in beliefs about the rightness or wrongness of particular actions (adultery, lying) as well as changes in how the individual behaves. An individual may change in how closely actions correspond to beliefs, but such changes do not form part of the developmental theory; the end state is cast in terms of moral reasoning, not moral action.

The choice of an end state is not arbitrary. Typically, the investigator will base the choice to some extent on the results of empirical investigations. It would be prima facie unreasonable to choose an end state that no individual had attained, since it would be difficult to study the way in which individuals attained maturity if there were never any mature individuals. Kohlberg, for example, had examined many protocols of moral reasoning before formulating his theory. Some of the protocols reflected reasoning that he chose to call mature.

Invariant Sequence

A developmental approach rests on the assumption that there is a way in which the individual reaches the end state. Like the decision about the characterization of the end state, description of the sequence of changes rests on decisions about what to include in the description, though the decisions are, as in the previous case, constrained by empirical evidence.

Kohlberg developed the descriptions of his six stages to fit the

data he had collected on the differences in moral reasoning, but also to fit a priori ways of describing moral positions, based on his readings in moral philosophy. That is, the stage descriptions were constructed using empirical evidence, but decisions were made regarding how the empirical evidence would be described, and which aspects of the evidence would be included in the description. In the search for a sequence of changes, the decision about what to include is also constrained by the prior choice of an end-state description. The sequence of changes must make clear how the characteristics of a mature individual finally arise.

Kohlberg considers his stage progression logically necessary. He believes that he has hit upon a formulation that not only shows how each aspect of the end state arises, but makes it impossible to imagine that those aspects could arise in any other way. Such logical necessity (if Kohlberg has really done this) more than fulfills the requirement of showing how the end state arises. All that is required is that each aspect of the end state be traceable back through the preceding changes.

The assumption that there is one way to the end is a device to make the changes comprehensible. This simplification requires ignoring changes prior to maturity that differ across individuals. This is often accomplished by specifying the sequence of changes in terms of the structure of the entity, and allowing for differences in content across individuals.

Often the sequence of changes is described in terms of a sequence of points along the continuum of change, rather than in terms of a gradual progression or modification. These points along the way are often called stages, or stage descriptions. Some developmentalists

place emphasis on discontinuities between these stages, while others think of the stages as merely convenient ways to summarize a clearly visible difference arrived at by some gradual alteration.

The invariance of the developmental changes implies that they can be seen as progressive. Stages are progressive because the individual must pass through each stage before the end state is reached, and in fact before the next stage in the sequence is reached. As in climbing a ladder in which the rungs are too far apart to permit ever skipping a rung, one makes progress by attaining each successive rung. "Progress" connotes some greater value being attached to the move from one stage to the next. In a developmental approach, the value consists of the fact that the entity has moved closer to the end (or mature) state. In climbing a ladder to reach a roof, moving from the third to the fourth rung is a progressive change, simply because one is closer to the goal. Note that neither in the ladder example, nor in a developmental approach is there necessarily progress in any broader sense, that is, if the process of change were interrupted before the end state were reached, there would not necessarily be any advantage in being at a later stage or a higher rung of the ladder.

Mechanisms of Change

Finally, the movement through the sequence of changes is considered to be self-directed. The interpretation given to self-direction differs widely among those taking a developmental approach. All agree that changes are not simply imposed from the outside; simple, externally determined changes are not consistent with a developmental approach. Still, the self-directed nature of changes may give some role to the outside environment. Even the most extreme example--the

development of a chick embryo inside the eggshell--gives the environment the power to curtail development, e.g. (by reducing the temperature). Other developmental approaches describe the process of change as interaction between the individual and the environment.

Kohlberg's and Piaget's model of active learning involves accommodation, assimilation, and maintenance of equilibrium. Individuals remain at a given stage of development until their application of their mode of moral reasoning produces results that they find inconsistent. This inconsistency creates a cognitive disequilibrium that the individual strives to remove by a change in mode of moral reasoning. The change that occurs is determined by the individual, not by the environment. The environment does, however, stimulate and support change through the dilemmas presented and the opportunity given for working through the inconsistency. Hence the model of change is self-directed, though giving some role to things outside the individual.

Other Approaches to the Study of Change

The features of the developmental approach described above may be better understood by comparing that approach to two other approaches to the study of change. The first approach is also a developmental approach, but one taken in another field--biology. Since the developmental approach in education has roots in biology (through Piaget), many similarities will be apparent. But the application of the biological approach to the context of teacher change has led to some modifications and reinterpretations. The second contrasting approach, the study of teacher socialization, looks at changes in teachers, but is not developmental. Since teacher changes are the focus, similarities are found again, but the shift from a developmental

to a socialization perspective places the role of the school setting into the foreground, while what the teacher brings to the classroom receives less attention. By these contrasts, one can see how approaching teacher change from a developmental perspective compares to other ways of looking at teacher change, and how the focus on *teacher* change requires modifications in approaches drawn from other fields.

The Biological Approach

The characterization of a developmental approach in terms of the end state and an invariant sequence of self-generated changes represents somewhat of a departure from the biological model of development (Hamburger, 1957). Biology has provided the model of which development of cognitive ability, or teaching ability. is a metaphoric adaptation. Though biologists do not agree on the essential characteristics of development, commonly accepted models would add features not included in our description of a developmental approach. In particular, biological development would deal with structural changes in an organism and would look at the changes as progressing from the simple to the complex and from the general to the specific. Our description of a developmental approach departs from the biological model because of the difficulty of adapting some features to other contexts. In our view, the feature of a developmental approach that will provide the most theoretical power is the explanation of change in terms of the end state. The components of the biological model that we have omitted would prove less powerful in the study of teacher change.

Some features of the biological model have been reinterpreted to form part of the developmental approach to teacher change. Though one might take the emphasis on structures as a feature of the developmental

approach, when this idea is taken out of the biological context in which it has reasonable clear referents, some new interpretation must be given. It is not clear what it means to say that cognitive *structures* are what develop, because it is not clear what a cognitive structure is.

We have abandoned the idea that what must change when teachers develop is some *structure*. Though one might stipulate which changes were structural, doing so for teacher changes obscures understanding more than it contributes to it (though many people do like to think of teacher development in terms of changing mental structures). Certainly, a developmental theory must specify what changes, but to say that what changes must be a structure is confusing. It is so unclear what a structural change might be in this context that one might call virtually anything a structure without fear of anyone else providing a strong counterargument. The problem of what changes in teacher development is difficult and important, but the problem is not solved by alluding to structural changes, so this feature has been omitted from our characterization of a developmental approach.

Emergence is a feature of the biological model that must be adapted to the context of teacher change. In the biological model this feature requires that developmental changes be distinguished by the appearance of new features in an organism, rather than mere expansion of already existing features. For example, the appearance of distinct fingers on the hand stump of an embryo would be a developmental change, while the enlargement of each finger might be growth, but not development. The idea that changes to be studied are distinguished by the emergence of new features adds power to the approach

to the study of teacher change. Unlike the biological model, what emerges are not new physical features. But is is easy to imagine what it might mean for new features to arise in a description of the teacher. For example, one might contrast the change in which the teacher first sees him- or herself as the person in the classroom with responsibility for the learning of others (as opposed to just another student) as a developmental change. This change might take place during student teaching if the student teacher is given considerable responsibility, while in other cases it might not take place until the second or third year of teaching. Such a change would be developmental, while the increasing facility in keeping student attention would be a change, but not a developmental change. By focusing on the emergent features of change, stage separations become clearer, and the consistent patterns of change can be seen more easily.

The Teacher Socialization Approach

The developmental approach to the investigation of change contrasts to a second approach also currently popular in teacher education--teacher change as teacher socialization. While a developmental approach tries to explain changes in individuals in terms of some end state, the socialization approach looks at changes in individuals in terms of the maintenance of group norms. The end state of development can be described in terms of characteristics of the individual (though some of those characteristics may concern the individual's way of relating to others). Group norms play a parallel role to the developmental end state, but these norms are by definition described in terms of *social* behavior.

While a developmental approach assumes that some common sequence of change occurs in all individuals, the socialization approach allows for differences among individuals prior to their entry into the group (or perhaps ignores these differences) and focuses rather on means that will bring the individuals into line, regardless of where they were to start with. While the developmental approach looks backward to describe each step along the way to the goal, the socialization approach focuses on the social norms and tries to determine which (and how) devices work to prevent or remove deviations from those norms. Finally, the emphasis in a socialization approach is on the direction of change by factors in the environment, not in the individual. While a socialization approach may allow for some characteristics of the individual to mediate the environmental influence, the direction of change is certainly externally determined. Kohlberg's Piagetian mechanism for change, expressed in terms of adaptation and equilibration, has been criticized for its vagueness and ambiguity (Haroutunian, 1979; Kuhn, 1979; Phillips, in press).

What You Can't Get From a Developmental Theory

Before discussing the benefits of a developmental approach in teacher education, we describe something it cannot provide. We begin here in order to refute a common claim. We might go so far as to say that the major educational benefit generally claimed for developmental theories is exactly the thing that they cannot directly provide. The limitation of developmental theory discussed in this section is not due to inadequacies in developmental theorists nor could it be overcome by improving the work done on the developmental

theories. The limitation is a necessary restriction on any developmental theory. If someone has been completely successful in producing a developmental theory, many benefits will follow, but some things do not. Specifically, the developmental theory will not provide a justification for particular educational goals. Justification for adoption of a developmental stage as a goal must come from outside the theory.

Our research project (of which this paper is a product) was initially predicated on the assumption that theories of teacher development might provide justifications for some goals for teacher education. Others have taken a more extreme position, insisting that developmental theory provides the best, and perhaps only, justification for the selection of educational goals. "Universal developmental sequences define something of educational value.... Such sequences comprise the ultimate criteria of educational value" (Kohlberg & Mayer, 1972, p. 487).

The temptation to use developmental theory in this way is increased because the theory purports to describe the way in which individuals progress. If the theory can tell you what progress is, surely it is a basis for supporting some goals. What better defense of a change than to say that it represents progress?

This use of developmental theory confuses description of what changes *do* occur with a prescription of what changes *should* occur. Though there remains considerable philosophic debate about the degree to which facts and values can be separated, there is agreement that a statement of what generally happens does not imply that these occurrences are desirable.

An even more telling argument against the use of developmental theory to defend one's choice of goals (at least in the simple sense that the mature state should be the goal), is that the characterization of the end state represents a decision on the part of the theorist, not simply an empirically based description. But surely no one would defend a goal solely on the grounds that a developmental theorist decided that it was a useful characterization. After all, the usefulness of the characterization to the theorist may well be based on the ease with which theory could be built, rather than on values which the theorist placed on any stage. Defense of the mature state cannot rest on the theorist's choice of that state. Rather the reasons for the choice must be examined. Someone who found the theorist's reasons to his or her liking would be accepting the mature state because of those reasons, not because of the state's place in a developmental theory. Theories don't have goals, people (e.g., theorists) do.

One attempt to sidestep the selection of an end state is to argue in terms of an end state that is "empirically based." The characterization of the mature state is sometimes constructed by examining a large number of "mature" individuals. For example, Fuller (1969) refers to a number of studies that look at the concerns of experienced teachers, and is thus able to select and characterize mature concerns. Such an "empirical" approach does not eliminate, but merely conceals or displaces, the decision of the theorist regarding what is to count as maturity. First, the selection of the population of individuals on which to base the construction of a mature individual is a decision. It can be seen most clearly if you think of the strategy as developing a picture of maturity by studying mature individuals. What must be provided from outside

the study is some way of deciding how to tell mature individuals from other individuals. Note that it will not work to say that maturity is reached when changes no longer occur. The only point at which an individual stops changing is at death (even then decomposition of the corpse is ignored). Furthermore, even assuming that the individuals could somehow be selected, the description of the mature state is an abstraction from the infinite variety of ways in which the individuals might be described. Many abstractions could be made, and the choice among them is a choice; it is not dictated by the data.

Uses of a Theory of Teacher Development

Suppose that a teacher educator has decided on goals for a teacher education program. If developmental theory cannot provide justification for those goals, what can it provide?

One might hope that once a goal for teacher edcuation was established, a theory of teacher change could indicate what should be done to reach that goal. One might especially expect this hope to be fulfilled if the goals chosen closely resembled stages in the developmental theory.

Unfortunately, most developmental theories, including existing theories of teacher development (Feiman & Floden, 1980, Note 1) are weakest in the area that is most crucial in determining methods for encouraging change--the description of the mechanism for change. Even in Piagetian developmental theory--where the theory has been worked out in greater detail than in any other theory of teacher development--various interpretations have been made of the way change occurs, with concomitant variations in the educational strategies seen as most appropriate.

> It is not difficult to recognize the parallel between this uncertainty on a theoretical front and the uncertainty...regarding the appropriate role of the teacher in activity-based early education programs.... Clearly, the question of just how intellectual development occurs is intricately connected to the question of how a teacher might optimally intervene in this process. Stated most formally, the question that remains unresolved in both educational and developmental theory is the nature of the process by which an individual's cognitive schemes make contact with, or interact with, the structures in the external environment, in particular in ways that lead to changes in those schemes. (Kuhn, 1979, p. 353)

But even the construction of a theory that was unequivocal about the way in which developmental changes come about would leave the teacher educator with the challenge of devising ways of bringing those changes about. An explicit theory of change does not explicitly imply the details of an educational program.

In part, the lack of clear implications for action is a general characteristic of theories. A theory is abstract and limited, hence many additional assumptions are required before any implications for action can be drawn. These assumptions can vary, and do not depend on acceptance of the theory, that is, you have to do more than accept the theory before you can see what to do (see, e.g., Phillips, 1978). For developmental theory in particular, this can be clearly seen. The theory at best provides a description of the changes the individual must go through and the mechanism by which change occurs. But this leaves a great deal of latitude regarding *how* that change could be artificially fostered. In particular, the theory will not describe any unintended consequences--side effects--of the various ways in which an educator might try to foster change. Yet these consequences must be considered

by the educator in deciding what to do. Hence, the theory alone cannot guide practice.

The theory does provide some guidance, even though the guidance is not in the form of specific recommendations for action. Particularly, through the description of the mechanism for change, the theory narrows the range of plausible interventions by indicating which interventions won't lead to the developmental end state (though of course the educator may want to pursue the intervention for other reasons). If learning is directed from within, for example, explicit teaching of the desired change will not produce the change.

While the preceding discussion of benefits has focused on the mechanism of change, the description of developmental stages may also be used by the teacher educator. If one had a description of the changes a teacher would go through, this description of changes would provide a way of categorizing teachers and of knowing how the teachers were going to change (though perhaps not how fast they were going to change). If the characteristics described in the developmental theory are informative about how teachers at various stages think, and what capacities they do and do not have, the categorization is helpful in predicting the effects of various alternative instructional strategies and content.

Furthermore, knowing the sequence of changes through which a teacher will move can be a tremendous aid to deciding on the sequencing of instruction, particularly if the teacher educator has some flexibility about how fast to pace instruction, as in some inservice programs. The teacher educator can predict some consequences of teaching something now, rather than later. Furthermore, knowing the

sequence of changes lets you know what stages are still to occur, and which are irretrievably past. Note that we are not disputing the general point in the previous section that the theory cannot provide explicit instructions for action. Just knowing the teacher's stage doesn't tell you what to do. But it can tell you something about the probable effects of various interventions (how much it tells you depends on the details of the theory).

For example, Fuller's theory of teacher development says that teachers are initially little concerned about impact on students and much concerned about their own survival. Thus Fuller would predict students of education to be poorly motivated to learn techniques designed to raise student achievement until they have passed through the early stages to the stage of impact concerns. If that is so, then teacher education courses should be sequenced so that the content that best fits early concerns is taught early and content related to increasing impact is delayed until teachers are ready for it, perhaps not until the teachers have two or three years of experience. Fuller summarizes this recommendation as "not teaching against the tide," and the metaphor is an apt one for this use of developmental theory. If you know that the tide will shift to a favorable direction, effort is better spent working at the dock than trying to sail before the tide has turned. A developmental theory can tell the teacher educator which way the tide is currently running and where it will run next.

The other uses of developmental theory all depend on the teacher educator valuing the developmental end state. As discussed in the preceding section, the value attached to the end state comes from outside the theory. But suppose the end state does have that external

support. Of what value is the theory to a teacher educator, at least in the ideal case?

A developmental theory enables the teacher educator to see teachers at a lower stage of development in a new light. Rather than evaluating a teacher's characteristics in terms of their present worth, these attributes can be seen as steps toward the end state, that is, they have a value because of their relationship to the end state, not just value in their own right. For example, Maja Apelman (Note 2) characterizes an end state in which teachers think about the relationships between their instructional activities and their goals for students. One step on the way to this end state is characterized by the desire to rearrange the classroom. The teacher educator may think of the classroom rearrangement as pointless in itself, but by accepting the developmental theory this can now be seen as a positive step towards the goal. Hence the teacher educator need not expend energy trying to persuade the teacher not to rearrange the classroom (which would in fact be stultifying if successful), and the teacher need not feel bad about doing the rearranging. In fact, a teacher educator without the developmental theory might be self-defeating by trying to prevent the teacher from rearranging the room, just because the connection to later stages was not seen.

In a similar vein, the developmental theory can be used to see that the success of a teacher education program or course should not be measured against the standard of the finished product. Emphasis on attainment of the superficial characteristics of the end state can be replaced with an emphasis on ends that are consistent with the stage at which teachers are currently operating. Rather than trying to prepare teachers for their easiest survival in the first

year of teaching, as many programs do now, it may be better to give teachers things that can be best learned at the stages corresponding to their undergraduate years. It may turn out that an examination of the development of teachers shows that the awful experiences of the first years of teaching are a necessary stage along the road to the desired end state. Teachers who thrive in the first year may do so at the expense of never being able to reach that state.

An ideal developmental theory would also indicate what role a teacher can play in teacher change. To the extent that changes are completely self-generated, a teacher educator should not worry about creating those changes specified by the developmental theory. These changes will either occur without the teacher educator's assistance, or they will not occur at all. The teacher educator's time is better spent trying to bring about desirable changes that are not developmental. A developmental theory may, as discussed previously, give some indication about which of these non-developmental changes is easiest to produce at each stage of development. There is no point wasting effort trying to accomplish changes over which the teacher educator has no influence. If movement to the next stage will occur naturally, there is no value in worrying about the teacher's occupation of a lower stage.

But the developmental theory does not cover all aspects of change, and there may be many other areas in which the teacher educator can produce effective changes. For example, Sprinthall and his associates (Oja & Sprinthall, 1978) advocate thinking of teacher development in terms of Kohlberg's stages of moral development. These stages may come about through processes beyond the teacher educator's control.

If so, then the teacher educator can forget about trying to produce those changes. But Sprinthall would probably not deny that, for example, knowledge of the subject matter to be taught, or rather increases in that knowledge, are not developmental changes, and may well be brought about by teaching.

To the extent that the teacher educator can have an influence on developmental change, the theory can help indicate what role the teacher educator can play in that change. Generally speaking, the developmental emphasis on inner direction suggests that the role is not one of direct instruction, but rather of guiding the student's active learning. Acceptance of a developmental theory switches the emphasis from teaching to learning, a switch that may be a valuable change in current teacher education practice, with its over-emphasis on skills training.

Implications for the Study of Teacher Development

The current enthusiasm for looking at teachers developmentally has presumed an overly empirical stand on the part of the investigator. People have started with descriptions of teachers at various levels of experience, and tried to develop categories to describe the differences among teachers. These categories are then referred to as stages in the development of the teachers.

We have tried to emphasize that the usefulness of a developmental approach depends crucially on the selection of an end state. A description of early changes is the wrong place to start. First, one must decide what is to count as a mature state. Then, the teacher's past must be considered to see how the various aspects of maturity arise.

In selecting the end state, two dimensions should be considered. First, how likely is it that teachers *develop* toward the end state, that is, what is the chance of finding a (relatively) invariant sequence of self-generated changes leading up to the end state? If one has reason to believe that teachers can be directly taught to achieve the end state, then that end state does not arise from development. Some other approach should be used to study the process of getting there. Promising areas for construction of developmental end states include growing self-confidence, and "with-it-ness" (you can't teach somebody to be "with-it"). Mastery of subject matter seems unlikely to develop.

It should go without saying that the end state chosen should be one that some teachers occasionally reach. Otherwise the chances of studying the stages leading up to the end are also remote.

The second dimension is the desirability of the end state. As indicated in the section under benefits, a developmental theory is more useful if the end state is something one hopes teachers will achieve. The fact that a state is the end of development does not make it worthwhile, but if the state is worthwhile for other reasons, the theory provides much more assistance.

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